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Older People's Life Satisfaction, Health and Intergenerational Relationships in Vietnam

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Abstract

Health is considered one of the domains to assess people's life satisfaction. However, other factors including social relationships are also as crucial as health in determining their life assessment, particularly among older adults in Asia. This paper used the data of Vietnam National Ageing Survey 2011 (VNAS 2011) to examine life satisfaction of Vietnamese older people's (aged 60 and older) in rural and urban areas in relation to their health conditions and their social relationships, including with adult children. Logistic regression was employed and revealed that sufficient income had positive influence on older people's satisfaction of life in both rural and urban areas (Rural OR 2.27; 95% CI 1.72–2.99; Urban OR 2.30; 95% CI 1.47–3.58). Difficulties with mobility and sleeping were negatively associated with older person's life satisfaction, however, affectual solidarity was the most influential factor (Rural OR 5.88; 95% CI 4.40–7.83; Urban OR 5.92; 95% CI 3.52–9.93). Therefore, intergenerational relationships are vital to older people's life satisfaction beyond health, income, household socioeconomic status, which varied between rural and urban areas. Living in multigenerational households, and children daily call positively shapes the assessment of life among older people who live in urban areas, while it is social and entertaining activities that significantly contribute to life satisfaction of older people in rural areas.

Keywords Ageing · Elderly · Life satisfaction · Health · Intergenerational relationships · Vietnam

Hal Kendig passed away before publication of this work was completed

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Introduction

Vietnam is experiencing extremely rapid population ageing, such that within 20 years (from 2017 to 2037), it will qualify as having an 'aged population'. By 2049, it is projected that 26% of the population will be 60 years or older (UNFPA 2011). According to the Vietnam Mid-Term Population and Housing Census 2014 (GSO and UNFPA 2016), the percentage of those aged 60 and above was already 10.1%, implying that the Vietnamese population was officially in the ageing process. It is even faster than the UNFPA's estimation that the percentage of people aged 60 and above would be 10% by 2015; in fact, data from World Bank Data indicated that in 2016, the percentage of persons aged 65 and above in Vietnam had already reached 7% and, according to the Vietnam 2014 Mid-term Census, 7.1% of the population were aged 65 and above. Factors contributing to accelerating population ageing in Vietnam include a decrease in total fertility rate and an increase in life expectancy, which were believed to be a result of improvement in economics, healthcare, and family planning campaigns.

Socio-economic and demographic changes are underway in social and family structures, living conditions and arrangements, values and norms in family relationships and care systems. More older people are seen living by themselves or alone. Vietnam may 'become old before becoming rich', as the number of elderly is rapidly increasing while GDP per capita is still average. Vietnamese older people will soon face challenges from these societal as well as individual transitions (Nguyen et al. 2012). Many older people are living in poverty (18% in 2004 and 13.3% in 2008 according to the official poverty line) (Giang and Pfau 2009; UNFPA 2011) and a few of them having social pension (26% in 2015) or social allowance meanwhile the amount of monthly social allowance they receive is inadequate for their living (Nguyen 2016). Proportion of active working older people is significantly high among 60–69 years old elderly but reduce sharply among older age groups and the main reason for them to keep working is to secure their income. Many of them are the main persons performing domestic work and providing grandparenting (Le et al. 2011), however, they do not consider grandparenting as a significant burden even when the parents are absent (Knodel and Nguyen 2014). Many studies have been conducted on Vietnamese older people in such context, but mostly focused on the aspect of healthcare, their economic situation, social welfare, pension. Few of them expand to how older people feel about their life after all. Thus, this paper is to study their life satisfaction as an important measurement of quality of life (Chaonan 2001; Meggiolaro and Ongaro 2015) to inform constructive policy development.

This paper considers life satisfaction of older people as the outcome of their intergenerational relationships, including living arrangements, support exchange and affection between generations. This study aims to investigate the association between health condition, intergenerational relationships and older people's global life satisfaction by urban and rural areas. Two research questions are: (1) To which extent does health condition affect life satisfaction among older people? (2) How do older people's intergenerational relationships influence their life satisfaction?

Literature Review

Life satisfaction is one of the core research areas in ageing studies, which have been dominated by researchers in Western countries (Kooshiar et al. 2012). The concept of

life satisfaction has been considered a close proxy for 'happiness' (Ng 2015), or is even known as happiness (Veenhoven 2012). It is a subjective measure of wellbeing that needs to be understood in the context of older people's lives, inclusive of physical and mental health, social participation, family relationships and living arrangements, as well as age and gender structure and social variations within cultural and economic environments (Chaonan 2001). Life satisfaction concept has been found to go beyond health and income, with other indicators, including social relations (Bonsang and van Soest 2011; Tomini et al. 2016) and more important, active participation in social and personal activities with no functional limitations (Netuveli and Blane 2008).

The determining elements of life satisfaction could include individual and social influences. For individual factors, they could be income, education, health and psychological resources (Jin et al. 2017) and many research have proved the strong associations between these factors and life satisfaction (Oshio et al. 2011; Li et al. 2013; Kim and Sok 2012). In addition, marital status can also be an important determinant because it was also found that married older people felt more satisfied with their life than those who were ever married (Fengler et al. 1982; Ben-Zur 2012; Cheung and Chou 2017). In Europe, family life, social life and health are the most influential predictors of older people's satisfaction (Delhey, 2004). Extensions to different spheres of older people's life have been reported in investigating life satisfaction, for example, the positive correlation between intergenerational support exchange, living with family and older people's life satisfaction. Older people who play the role of support providers are more likely to be satisfied with their life than those who are merely recipients. Further, studies identified the importance of intimate relationship to the wellbeing of older people (Kim and Sok 2012; Lowenstein et al. 2007). Regarding living arrangements, older people who live with family were found to be more satisfied with their health as well as their life satisfaction (Shin and Sok 2012).

Social participation and integration were considered as social influences to older people's life satisfaction and these factors could be beneficial to older people's life satisfaction (Jin et al. 2017). Ponce et al. (2014) examined the association between social participation and subjective wellbeing of older adults and the paper reported that older people's subjective wellbeing also strongly depends on their active participation in social activities, specifically in social associations.

Life satisfaction has recently received attention in developing countries, including Vietnam, as rapid population ageing is raising concerns and challenges for socio-economic development, human capital, care and pension systems and other age-related issues. Generally, research in Vietnam stresses more on health and economic conditions (Hoang et al. 2010; Nilsson et al. 2012; Le et al. 2010), and pays less attention to groups of older people and social aspects when examining older people's life satisfaction. Researchers have recently found broader perceptions of life satisfaction among older people, encompassing social relations, social participation, harmony within the family, community engagement, filial relationships and success of children (Nguyen et al. 2012). Recent research by Yamada and Teerawichitchainan (2015) examined the relationship between living arrangements and older people's psychological wellbeing using VNAS 2011. Psychological wellbeing was measured by happiness, depression, loneliness, poor appetite and sleep disorder with a 0–10-point scale. The authors found that co-residence with children facilities better psychological wellbeing among Vietnamese older people. The results from this research have

valuable implications for the mental health of older people, particularly those who are non-co-resident with children because of children's migration.

Traditional culture (such as having a son or grandson and living arrangement patterns), social norms and values regarding older people's roles and their relationships within the family and community remain strong in Vietnam, possibly contributing to determining older people's assessment of their life. Traditionally, Vietnamese older people expect to live with their eldest son, and they are 'typically supported in their old age by their sons', 'therefore, a son is more desirable as an investment' (Haughton & Haughton, 1995, p. 325). If they do not have a son, they may live only with their spouse or live alone and may move into a married daughter's house when they become widowed. Thus, even though son preference is no longer as dominant as in traditional custom, it is still present. However, there is a limited evidence on the relationship between having a son and older people's life satisfaction although the value of a son remains strong in the culture.

Based on the assumption that intergenerational relationships are important in determining older people's assessment of their life satisfaction, even more significant than health and economic condition, this paper will focus on the relationship between the Vietnamese older people's life satisfaction and intergenerational relationships. These relationships include intergenerational exchange, living arrangements, affectual solidarity, participation of older people in making important decision, domestic violence and older people's participation in social and entertainment activities.

Research Method

Data Source and Sample

This study used data from the Vietnam National Ageing Survey conducted in 2011 by the Institute of Social and Medical Studies (ISMS) and Indochina Research and Consulting (IRC). The total sample of the original survey is 4007 individuals aged 50 and older, with a very high response rate of about 96%. The data were collected through face-to-face interviews using a structural questionnaire with respondents living in both rural and urban areas in 12 provinces of Vietnam. The sample was extracted from the Population and Housing Census 2009, using a probability proportional to size sampling method to ensure the representativeness of the sample to the older people population of all regions and areas. The sampling procedure followed four steps: (1) randomly identifying 12 provinces from six ecological zones, (2) choosing 200 communes randomly from 12 selected provinces, (3) randomly choosing two villages in each selected commune and (4) randomly selecting 15 people aged 50 and older (10 for interviews and five for alternatives) (see details of sampling in Giang Thanh Long 2011). The survey used proxy respondents at the time of the interviews if the chosen respondents were unable to answer the questionnaire, which might help to increase the response rate of the survey but can introduce measurement error. This paper examines the association between older people's life satisfaction and their intergenerational relationships which include intergenerational interaction, mutual support exchange, affectual solidarity between older people and their adult children. A sub-sample of 2700 older people aged 60 and older and have at least a child was extracted from the

survey's sample (childless older people accounts for 3.2% of the total sample). The cut-off age was decided based on the Vietnam Law on the Elderly (Article 2) in which indicates that people who aged 60 and older are considered older people.

Study Measures

Global life satisfaction was measured by a single question 'Overall, how satisfied would you say about your life?' and there was a Likert 5 level scale including (1) very dissatisfied, (2) dissatisfied, (3) neither dissatisfied nor satisfied, (4) satisfied and (5) very satisfied for respondents to identify their level of satisfaction with their life. This paper does not aim to examine gradients of life satisfaction among older people, instead, it mainly focuses on how social relationships of older people influence their assessment of life satisfaction in comparison with other factors including health and income. Therefore, the original measure was then recoded into a dichotomous variable. The responses of "1" to "3" were classified as "very dissatisfied or dissatisfied", and the responses of "4" and "5" then was classified as "very satisfied or satisfied". The computation of this variable is similar to many other studies on global life satisfaction (Ohemeng et al. 2019; Berglund et al. 2016; Meyer and Dunga 2014; Terano and Mohamed 2013) where the authors also computed a new variable on life satisfaction from the original 5-level Likert scale or other scale of measures. As mentioned above, the original study used proxy responses, however, for the nature of life satisfaction, the question on older people's assessment of their life was only responded by themselves, accounted for 92% of the sample.

Older people's health conditions were measured in plenty aspects including their selfcare, mobility, health complaint, diagnosed disease, vision, sleeping, and cognitive health. Older people, in the original survey, were asked whether they have had difficulties in eating, getting dressed/undressed, bathing, getting up, getting to and using the toilet, of which are considered as their self-care activities in this study. Mobility is older people's ability to walk, lift or carry things as heavy as 5 kg, crouch or squat, use fingers to grasp or hold things, walk up and down a set of stairs, stand up and extend arms above shoulder level without assistance. Selfcare and mobility then were recoded into binary variables classified as "0" no difficulties", "1″ difficulties in selfcare or mobility. Health complaints included the symptoms of illness (16 items) and classified as "0″ no health complaint, "1″ at least one health complaint. Diagnosed diseases refer to 12 diseases that they might have (any of those) at the time of the survey and recoded into a binary variable ("0″ no diagnosed disease, "1″ having at least one diagnosed disease). Vision, sleeping and cognitive health were classified as 0 "no difficulties" and 1 "difficulties in vision".

Living Arrangements Of older people were measured by a categorical variable indicates whether older people "0" lives alone or with spouse, "1" lives in other arrangements (lives only with children, spouse and children, spouse and other relatives, children and other relatives, only with other relatives) or "2" lives in multigenerational household (at least three generations).

Intergenerational Exchanges Included dichotomous variables were measured by questions of whether older people are providing financial support to their adult children or not ("0" no; "1" yes); and whether they are receiving any financial support or care support by any adult children or ("0" no; "1" yes).

Intergenerational Interaction Includes the level of visit and phone calls between older people and their adult children. In this analysis, it was measured by continuous variables on number of children visit/phone call to older people on daily and weekly basic.

Participation in Making Important Decision Older people were asked whether they were usually asked for their opinion when the family need to make decision on important matters. A three level scale had been originally used to measure their participation in making decision including "1" yes, listened to, "2" yes, but do not take it seriously, or "3" no, not at all, and in this analysis, "2" and "3" were recoded into "0" no, and "1" into "1" yes in a new dichotomous variable.

Affectual Solidarity variable was recoded from the original variable measured how older people feel about the respect of young family members with a 5-point Likert scale ("1" very dissatisfied, "2" dissatisfied, "3" neither dissatisfied nor satisfied, "4" satisfied and "5" very satisfied). Responses of "1" to "3" were classified as "0" very dissatisfied or dissatisfied, and responses of "4" and "5" recoded to "1" as very satisfied or satisfied.

Domestic Violence Older people in the original survey were also asked about experience of domestic violence which included whether they have been spoken harshly, refused to talk to, shaken/hit by family members or not during the last 12 months. A dichotomous variable was created to measure whether older people had experienced any of the listed "violence" ("0" never experienced; "1" ever experienced at least one of those).

Social and Entertaining Activities Were considered as social inclusion, calculated by (response: "0" no; "1" yes):

1) whether older people were participating in any social activity/club, exercise groups organized by community (1 item)
2) whether they were active members and participating in activities of any social-political associations in their community including The Association of Elderly, Farmer Union, Veteran Union, Vietnam Women Union by the time of the survey (4 items);
3) whether they watch/read/listen to some types of media including newspaper/magazines, television, radio, internet, and public speakers (5 items).

A new continuous variable was computed by summing up the values of these indicators, of which the value ranges from 0 to 10. The higher the value of the new variable represent the higher involvement in social and entertaining activities among older people.

Household SES Was computed using Principal Component Analysis (PCA) based on variables on housing conditions and household's fixed assets and durable appliances. An index was created, then divided in five quintiles, with the first quintile including the poorest households and the fifth including the least-poor households.

Covariates included age, gender, marital status, education levels, household size, resident areas ("1" urban, "2" rural), number of son, income sufficiency, pension receipt. Age of older people is a continuous variable ranged from 60 and older which is presented in Table 1 with mean and standard deviation; marital status of older people is a dichotomous variable classified "0" currently single and "1" in current partnership. Education levels were classified as "1" no schooling, "2" primary or less than 6 years, and "3" from 6 years and above. Older people's income refers to all income/support and is a self-assessment variable. Older people were asked how sufficient their income or support was and measured by a four level scale ("1" rarely or never enough; "2" sometimes not enough; "3" enough; "4" more than enough), and recoded into a dummy one ("0" insufficient; "1" sufficient). Pension receipt was classified as "0" no pension" and "1″ receive at least one pension. Household size is a categorical variable calculated by the total number of household members who are living together under the same roof and divided into four categories as shown in Table 1.

Method

Based on the purpose of the research, the study used logistic regression as the major analytical method to address the research questions. Analyses were stratified by rural and urban areas, given differences in socio-economic conditions between these areas. A model was implemented to estimate for urban and rural areas separately to identify the different determinants of older people's life satisfaction between the two areas. Dependent variable is how older people assess their life satisfaction ("0" dissatisfied; "1" satisfied). Independent variables include older people's selected socio-economic characteristics, their health conditions, and their social relationships including affectual solidarity, and intergenerational exchanges.

Results

Demographic Characteristics of Respondents

As mentioned above, the sample included 2700 participants among them 1990 living in rural areas and 710 living in urban areas. Age of the respondents are from 60 and older with a mean of age in rural areas is 72 ± 0.89 years and 72.1 ± 0.87 years in urban areas. Living arrangement patterns are slightly different between rural and urban areas. While proportion of older people living on their own (alone or with a spouse) in rural areas accounts for 30.7%, it is only 16.1% in the urban areas. Differences in household SES are also reported. The proportion of older people living in the poorest household in rural areas is significantly higher than in urban areas, account for 30.3% and 4.5% respectively. 5% of rural older people are living in the least poor household while it is 45.1% among urban areas. In regard with health conditions, urban older people are reported healthier than rural older people when the proportions of those who do not have difficulties in health are higher than rural older people in almost all health domains (Table 1).

Table 1 Selected characteristics of the sample by areas of residence ($n = 2700$)

Variables	Rural ($n = 1990$)			Urban ($n = 710$)		
	N	%	*SD*	*N*	%	*SD*
Satisfied with life	1210	60.8		459	64.6	
Age (Mean ± SD)	72.0	–	0.9	72.1	–	0.9
Gender			0.5			0.5
Male	810	40.7		283	39.9	
Female	1180	59.3		427	60.1	
Education			0.7			0.7
No schooling	420	21.2		75	10.6	
Primary or < 6 years	1097	55.3		318	45.0	
More than 6 years	467	23.5		314	44.4	
Marital status			0.5			0.5
In current partnership	1177	59.1		425	59.9	
Currently single	813	40.9		285	40.1	
Living arrangements			0.8			0.7
Living alone or with spouse	611	30.7		114	16.1	
Living in other arrangements	514	25.8		214	30.1	
Living in MGHs	865	43.5		382	53.8	
Household SES			0.9			1.2
1st quintile (poorest)	603	30.3		32	4.5	
2nd quintile	536	26.9		58	8.2	
3rd quintile	448	22.5		107	15.1	
4th quintile	304	15.3		193	27.2	
5th quintile (least poor)	99	5.0		320	45.1	
Household size			0.9			0.9
1–2 members	721	36.2		150	21.1	
3–4 members	536	26.9		226	31.8	
5–6 members	556	27.9		234	33.0	
7+ members	177	8.9		100	14.1	
Number of son (Mean ± SD)	2.47		1.5	2.15		1.5
Health condition						
No difficulties in selfcare	1174	59.0	1.5	469	66.1	1.4
No difficulties in mobility	514	25.8	2.5	202	28.5	2.4
No difficulties in sleeping	412	20.7	0.4	213	30.0	0.5
No problems in cognitive health	268	13.5	0.3	135	19.0	0.4
No health complaint	51	2.6	0.2	33	4.6	0.2
No diagnosed diseases	535	26.9	0.4	159	22.4	0.4
No difficulties in vision	642	32.3	0.5	276	39.0	0.5

Source: Own calculations, using VNAS 2011

Association between Health-Related Determinants and Older people's Global Life Satisfaction

Table 2 presents the correlation matrix between life satisfaction, health condition, age and resident areas of the older people. Except for age, all the other variables are negatively correlated with life satisfaction, particularly all health components. The results suggest that older people with less health problems, especially in selfcare, mobility and sleeping, are more satisfied with life and vice versa. For example, older people's life satisfaction and their mobility are negatively correlated which mean that if life satisfaction increases (being more satisfied), the value of mobility variable decreases (less difficulties in mobility) and vice versa. In addition, a significant negative correlation is also reported between life satisfaction and older people's resident areas, which mean that higher level of life satisfaction tends to be among older people who live in urban area and vice versa.

Older people's age and health conditions are positively correlated, except for diagnosed diseases. It means that older people at more advanced age are having more difficulties or problems in health conditions, especially with selfcare and mobility. Health components themselves are also positively correlated to each other, for example, the linear relationship between selfcare and mobility is statistically significant.

Social Relationships of Older People

Older people's social relationships consist of their participation in making important decision in the household, their affectional solidarity, experience of domestic violence, intergenerational exchange and interaction, and their social and entertaining activities. Table 3 describes the prevalence of older people's social relationships by resident areas.

Table 2 Correlation between Life satisfaction (LS), health condition, age and resident areas

	LS	Age	Resident areas	DSC	DM	DS	DCH	HHC	HDD	DV
LS	1									
Age	−.017	1								
Resident areas	−.044*	−.003	1							
DSC	−.183**	.302**	.041*	1						
DM	−.223**	.344**	.051**	.627**	1					
DS	−.167**	.096**	.097**	.214**	.271**	1				
DCH	−.076**	.084**	.069**	.118**	.196**	.150**	1			
HHC	−.079**	.065**	.053**	.091**	.181**	.195**	.117**	1		
HDD	−.069**	.012	−.045*	.109**	.192**	.093**	.070**	.144**	1	
DV	−.124**	.076**	.062**	.156**	.249**	.148**	.166**	.108**	.061**	1

DSC, Difficulties in selfcare; DM, Difficulties in mobility; DS, Difficulties in sleeping; DCH, Difficulties in cognitive health; HHC, having health complaint; HDD, having diagnosed disease; DV, difficulties in vision

*. Correlation is significant at the 0.05 level (2-tailed)

**. Correlation is significant at the 0.01 level (2-tailed)

Sources: Own calculations, using VNAS 2011

Table 3 Social relationship of the participants

Variables	Rural (n = 1990)			Urban (*n* = 710)		
	N	%	*SD*	*N*	%	*SD*
Participating in making important decision			0.47			0.47
Yes	1352	67.9		483	72.0	
No	638	32.1		227	32.0	
Experienced domestic violence			0.32			0.32
Never	1756	88.2		629	88.6	
Ever	234	11.8		81	11.4	
Affectual solidarity			0.42			0.48
Satisfied	1533	77.0		554	78.0	
Dissatisfied	457	23.0		156	22.0	
Receiving care from children			0.32			0.32
Yes	246	12.4		84	11.8	
No	1744	87.6		626	88.2	
Receiving financial support from children			0.42			0.40
Yes	1528	76.8		565	79.6	
No	462	23.2		145	20.4	
Providing financial support to children			0.39			0.39
Yes	375	18.8		133	18.7	
No	1615	81.2		577	81.3	
Number of children daily visit (mean ± SD)	2.53		2.95	2.0		2.65
Number of children weekly visit (mean ± SD)	1.70		2.49	1.45		2.23
Number of children daily call (mean ± SD)	0.35		1.22	0.43		1.26
Number of children weekly call (mean ± SD)	1.17		2.18	1.10		1.91
Social and entertaining activities (mean ± SD)	2.04		1.39	2.18		1.44

Source: Own calculations, using VNAS 2011

There are slightly differences between rural and urban areas in regard with older people's social relationships. For example, older people who live in urban areas seem to have more power than those who live in urban area when the percent of those who participate in making important decision in the household is lightly higher than those who live in rural areas (72% and 68% respectively). Older people who live in rural areas seem to have more children paying visit daily than those who live in urban areas (mean = 2.5 in rural areas versus 2.0 in urban areas), which may be the result of differences in proximity between older people and their offspring in urban and rural areas.

Table 4 presents the correlation matrix between life satisfaction of older people and their social relationships. Life satisfaction of older people is significantly correlated with almost all the social relationship components, except for resident area, receiving financial support from children and number of children weekly visit. Results from Table 4 show negative correlations between life satisfaction and older people's age, experience of domestic violence, and receiving care from children ($p < 0.01$), which

suggest that older people may be dissatisfied with their life as the whole when they are in more advanced age, ever experienced of domestic violence, or are receiving care from their children and vice versa. On the contrary, life satisfaction of older people is highly positive correlated with their participation in making important decision in the household, affectual solidarity, social and entertaining activities and number of children weekly call ($p < 0.01$). In addition, older people's life satisfaction is also reported positively correlated with providing financial support to children, number of children daily visit and number of children daily call.

Association between Health, Social Relationship and Older people's Life Satisfaction

Table 5 provides results of logistic regression on the global life satisfaction of older people by rural and urban areas. The result of the Hosmer & Lemeshow test of the goodness of fit indicates that the model significantly fit with the data as p value = 0.218 (>0.05) for the case of urban areas and 0.504 (>0.05) for the cases of rural areas. The model can explain 74.4% of the cases in rural and 81.3% the cases in urban areas. In addition, the values of the Nagelkerke's R^2 suggest that the model explain 36.2% and 46.3% of the variation in the outcome for urban and rural areas respectively.

The results show some variations between rural and urban areas in determinants of older people's life satisfaction. In regard with characteristics of older people, age, gender and marital status are significant factors determine rural older people's life satisfaction but not their urban counterparts. Male rural older people are less likely to be satisfied with life than female counterparts. Those who are in their older age are also more likely to be satisfied with life than those in earlier old age (Adjusted OR = 1.03). Marital status turns out not to be a determinant among urban elderly but significantly influence rural older people's assessment of their life. Income and household SES significantly influence on older people's life satisfaction in both rural and urban areas. Particularly, both rural and urban older people who have sufficient income for daily living are 2.3 times more likely to be satisfied with their lives than those who do not have sufficient income.

In regard to health determinants, older people in both rural and urban areas who have difficulties in mobility and sleeping are less likely to be satisfied with life than their counterparts. In terms of social relationships, for both rural and urban older people, affectual solidarity plays an extremely important role in determining older people's life satisfaction, as those who feel satisfied with the younger generation's respect are more likely to positively assess their lives on the whole (5.9 times in urban areas and 5.8 times in rural areas). This factor is followed by 'sufficient income', 'participating in making important decisions' and 'social and entertaining activities' among rural elderly. Urban elderly who have experienced domestic violence from family members are less likely to feel satisfied with their lives. They are also more likely to be satisfied with their life if they live in multigenerational households rather than with others. Intergenerational exchanges and interaction were not reported as significant determinants of life satisfaction among older people, except for the case of number of children making daily phone call to older people who are living in urban areas. Urban older people are more likely to be positive when assessing their life if there are more children call them daily. For rural older people, social and entertaining activities contribute to

Table 4 Correlation matrix between older people's life satisfaction and social relationships ($n = 2700$)

Variables	LS	Age	RA	PMID	EDV	Affectional solidarity	RC	RF	PF	SEA	No of children daily visit	No of children weekly visit	No of children daily call	No of children weekly call
LS	1													
Age	−.117**	1												
RA	−.035	−.003	1											
PMID	.292**	−.345**	−.001	1										
EDV	−.135**	−.025	.005	−.102**	1									
Affectional solidarity	.433**	−.203**	−.010	.391**	−.227**	1								
RC	−.195**	.275**	.007	−.202**	−.009	−.216**	1							
RF	.017	.058**	−.029	−.005	−.025	.028	.019	1						
PF	.051**	−.220**	.001	.150**	.017	.044*	−.052**	−.077**	1					
SEA	.251**	−.302**	−.044*	.374**	.009	.272**	−.227**	−.040*	.183**	1				
No of children daily visit	.050**	.083**	.079**	.002	−.009	.055**	−.021	.048*	−.005	−.016	1			
No of children weekly visit	−.015	.133**	.047*	−.015	−.025	−.026	.032	−.008	−.048*	−.009	−.155**	1		
No of children daily call	.095**	−.113	−.031	.109**	−.026	.083**	−.031	.031	.110**	.179**	.035	−.010	1	
No of children weekly call	.121**	−.125**	.016	.159**	−.057**	.126**	−.069**	.048*	.068**	.169**	−.040*	.111**	.071**	1

LS, Life satisfaction; RA, resident area; PMID, participating in making important decision; EDV, experienced domestic violence; RC, receiving care from children; RF, receiving financial support from children; PF, providing financial support to children; SEA, social and entertaining activities

*. Correlation is significantly significant at the 0.05 level (2-tailed)

**. Correlation is significantly significant at the 0.01 level (2-tailed)

Source: Own calculations, using VNAS 2011

Table 5 Global Life Satisfaction stratified by rural and urban areas

Variables	Rural (n = 1990) Adjusted OR (95% CI)	Urban (*n* = 710) Adjusted OR (95% CI)
Gender[ƒ]		
Male	**0.76 (0.58–0.99)**	0.99 (0.60–1.65)
Female (ref)	–	–
Age[§]	**1.03 (1.01–1.05)**	1.03 (0.99–1.06)
Marital status[ƒ]	–	–
Currently single	**0.68 (0.52–0.90)**	0.80 (0.47–1.34)
In partnership (ref)	–	–
Education[‡]		
No schooling	0.92 (0.62–1.37)	1.69 (0.72–3.95)
Primary or < 6 years	1.06 (.77–1.44)	1.41 (0.83–2.40)
More than 6 years (ref)	–	–
Sufficient income[†]	**2.27 (1.72–2.99)**	**2.30 (1.47–3.58)**
Pension receipt[†]	0.90 (0.70–1.15)	0.76 (0.48–1.19)
Household SES[‡]		
1 quintile (poorest)	**0.42 (0.22–0.80)**	0.40 (0.13–1.19)
2 quintile	**0.50 (0.26–0.93)**	**0.37 (0.17–0.82)**
3 quintile	0.70 (0.37–1.32)	0.67 (0.35–1.27)
4 quintile	0.87 (0.45–1.68)	0.63 (0.38–1.05)
5 quintile (least poor) (ref)	–	–
Household size[‡]	1.04 (0.84–1.30)	0.80 (0.57–1.14)
Living arrangements[ƒ]		
Living alone or with spouse	0.99 (0.59–1.66)	0.56 (0.22–1.46)
Living in other arrangements	0.80 (0.55–1.15)	**0.49 (0.27–0.89)**
Living in MGHs (ref)		
Number of son[§]	1.02 (0.94–1.10)	1.01 (0.86–1.17)
Health condition[†]		
Difficulties in selfcare	0.92 (0.83–1.02)	0.99 (0.82–1.21)
Difficulties in mobility	**0.93 (0.88–0.99)**	**0.81 (0.72–0.91)**
Difficulties in sleeping	**0.60 (0.45–0.81)**	**0.38 (0.22–0.37)**
Difficulties in cognitive health	0.84 (0.59–1.19)	1.26 (0.72–2.22)
Having health complaint	0.84 (0.36–1.98)	1.02 (0.30–3.49)
Having a diagnosed disease	0.87 (0.67–1.12)	1.15 (0.68–1.95)
Difficulties in vision	0.99 (0.77–1.29)	1.04 (0.67–1.62)
Social relationships		
Participation in making important decisions[†]	**1.45 (1.11–1.88)**	**1.68 (1.03–2.73)**
Social and entertaining activities[§]	**1.15 (1.04–1.27)**	1.18 (0.98–1.41)
Experienced with domestic violence[†]	1.07 (0.76–1.50)	**0.45 (0.24–0.85)**
Affectual solidarity[†]	**5.88 (4.40–7.83)**	**5.92 (3.52–9.93)**
Receiving care from children[†]	0.68 (0.46–1.02)	0.88 (0.40–1.93)
Receiving financial support from children[†]	0.89 (0.69–1.15)	1.06 (0.63–1.77)
Providing financial support to children[†]	0.92 (0.69–1.23)	1.07 (0.60–1.90)

Table 5 (continued)

Variables	Rural (n = 1990) Adjusted OR (95% CI)	Urban (*n* = 710) Adjusted OR (95% CI)
No. of children to visit daily§	1.03 (0.98–1.07)	0.99 (0.92–1.10)
No. of children to visit weekly§	1.00 (0.95–1.05)	0.97 (0.88–1.07)
No. of children to call daily§	1.01 (0.91–1.12)	**1.28 (1.00–1.63)**
No. of children to call weekly§	1.03 (0.98–1.09)	1.07 (0.96–1.20)
−2 Log likelihood	2037.120	620.437
Nagelkerke R^2	0.362	0.463

† binary variables; § continuous variables; ‡ categorical variable

Source: Own calculations, using VNAS 2011

Bold values indicate statistically significance results ($p < 0.05$)

their satisfaction with life as the more they participate in those activities, the more they are satisfied with life.

As shown in Table 5, household social economic status, sufficient income and health play important roles in determining older people's life satisfaction, but beyond these factors are older people's social relationships, particularly interaction between generations and affectual solidarity.

Discussion

Findings confirm the importance of health, economic status and living conditions in determining older people's assessment of their lives. Older people who have good health, sufficient income for daily living and reside in higher household wealth level are more likely to be satisfied with their lives. These findings have also been demonstrated in many previous studies, especially the significant impacts of older people's health condition (Kolosnitsyna et al. 2017; Dumitrache et al. 2017; Liu et al. 2016). This study, however, extended its analysis to intergenerational relationships to find out that the quality of the relationship between older people and younger generation in their family was far beyond other factors in shaping older people's life satisfaction.

The assessment of older people about their health somewhat represents the actual situation in Vietnam with the recent increasing risk of the double-disease burden arising from the shift from infectious to non-infectious and chronic diseases. New diseases have been diagnosed and become more common, including cancer, stress and depression, as the result of changes in lifestyle and environment. On average, a Vietnamese older person has 2.7 diseases (Pham 2007). Self-assessment of health condition may vary among older people, apart from other personal and household socio-economic characteristics, older people with mobility problems were the least likely to be satisfied with life, followed by those who had difficulties in sleeping. Nevertheless, it is other social factors, including marital status, household wealth, and especially, income sufficiency and living arrangements, that had more significant influences than health domain on older people's assessments.

Older people in this analysis, particularly in urban areas, who live in multigenerational households are more likely to be satisfied with their life than those who live in other arrangements (including living only with children, living with spouse and children, with spouse and other relatives, with children and other relatives, or only with other relatives). This finding is partially supported by Silverstein et al. (2006) who also found a positive association between living in multigenerational household and psychological well-being among older people in China. Even though living alone was found negatively associated with poorer health condition and negative life satisfaction in previous studies (Kooshiar et al. 2012; Agrawal 2012), living alone or with a spouse in this analysis is not significantly associated with life satisfaction in comparison with living in multigenerational household. One noteworthy point is that living alone does not necessarily mean loneliness because it is a part of emotional health and both of them have impacts on older people's lives but possibly in different patterns and extent. Older people who live alone may not feel lonely if they have a good relationship with their family and friends. Similarly, older people who are living with families may still feel lonely, the extent of which much depends on the quality of their social relationship and participation. Thus, though agreed with finding in this analysis, Lim and Kua (2011) also argued that living alone should be considered separate to loneliness because loneliness is a stronger predictor to depression symptoms and older people's quality of life.

The inequality of living standards between rural and urban areas in Vietnam (Le and Booth 2014) may lead to different health outcomes and affect older people's assessment on the whole. Older people who live in rural areas reported more health problems than those who live in urban areas, especial with sleeping. In addition, a significant number of rural older people have insufficient income and/or are living in poor households, which makes them more vulnerable (than those who live in urban areas) once they have severe health conditions. Findings in this analysis confirm the positive influences of income and/or living conditions on older people's life satisfaction as the second important factor. However, the levels of income effect may vary between lower-income and higher-income groups (Ngoo et al. 2015); for example, the effect may be more significantly different between the lowest-income and the highest-income group than between the middle-income and highest-income group. Income can also be more important in reducing life dissatisfaction than influencing high life satisfaction (Boes and Winkelmann 2009). Higher income or better living conditions determine available resources for older people; this is extremely important when they have health problems, as higher income increases the chance of receiving better healthcare services, and better living conditions may help to reduce the risk of experiencing health problems.

Beyond health conditions, household social economic status, and income, intergenerational relationships are vital. While health, income and living conditions may be described as 'necessary conditions', social–psychological factors, such as intergenerational solidarity, are 'sufficient conditions' in assessing older people's lives. These findings are partially consistent with previous studies (Nguyen et al. 2017), and precisely reflect the reality in Vietnamese older people's socio-psychological lives as regards cultural traditions, because they instil the thought that happiness in old age derives from the quality of relationships with their children and grandchildren, and seeing the next generations growing up successful. Findings from this paper also provide evidence and emphasise the importance of intergenerational relationships, specifically the affectual solidarity between generations, on older people's life satisfaction, because those who are respected by younger generations and/or participate in

making important decisions in the family are more likely to be satisfied with their lives. The norm of 'seniores priores' has been an important tradition in Vietnamese society from feudal to modern society, because it pays high respect to older people. In the past, the elderly held the highest position in the family, with all the power, because of the age-stratification system, especially for elderly men. That norm may be significantly driving older people's expectations of relationships with next generation, and once it is not met, their assessment of life is different, as stronger bonds between generations can increase older people's life satisfaction (Lin et al. 2011).

Findings in this paper also confirm the strong relationship between social inclusion and life satisfaction of older people, but only for those who live in rural areas. Those who engage in social and entertaining activities also tend to positively assess their lives. On the contrary, living with family is significantly important to urban older people. These findings depict the different impacts of place of residence on elderly assessment of life. In this research, older people in rural areas participated in social organisations and community activities more than those who lived in urban areas. Research has proved the crucial roles of social contact and activity participation in older people's wellbeing and quality of life, which contribute to significantly reduced loneliness and social isolation among older people (Bonsang and van Soest 2011; Blace 2012). The implications of these findings may include designing programmes to promote social activity participation among older people in urban areas.

In general, similar to other studies in both Asia and the West, results from this analysis emphasize the significant impacts of health, income and family relationships on life satisfaction or subjective wellbeing of the elderly. However, consistent to previous study, income and health in this analysis are not the most important factors to estimate older people's life satisfaction (Ngoo et al. 2015). The difference of this study is that it distinguishes between rural and urban areas to consider how the determinants of life satisfaction differ for older people in two areas. The results, as discussed above, indicate significant influence of social inclusion on life satisfaction of the elderly in rural areas, while intergenerational interaction is important for older people in urban areas.

There are limitations to the research in this paper, including the availability of information on life satisfaction domains in VNAS 2011 - a cross-sectional survey. There might be bias on the life satisfaction estimation result due to endogeneity issue. Unfortunately, the data did not have instrumental variables on health factors that may help to solve endogeneity problem. Another limitation was that all analyses in this paper applied unweighted data. Notably, weighted data have specific benefits in the analysis, such as allowing conclusions about the population representativeness of the results and modifying the descriptive information on the sample. Nevertheless, weighted data also have drawbacks, such as introducing significant design effects into data and increasing standard errors; these effects may apply to all statistical analyses including descriptive, regression and other techniques. The primary purpose of this paper is to initially explore the association between intergenerational relationship and life satisfaction using a secondary dataset, from that a sub-dataset on older people with a least one child was drawn (to a certain extent, this can also be considered a limitation because the analysis did not cover childless older people), and that weighting was not required. Further research could focus on the different aspects in intergenerational solidarity; specifically, consensual solidarity.

Conclusion

Life satisfaction is an important element in assessing people's quality of life. In this study, life satisfaction has been examined from the elderly's perspective and in the relationship with their health and relationship between generations. The findings confirm that, in addition to health and income, intergenerational relationships play a central role in older people's positive assessment of their life. Living in a multigenerational household can increase the life satisfaction of urban older people while social and entertaining activities and participation in making important decision within the family can enhance rural older people's life satisfaction. This study contributes to the literature on older people's life satisfaction by confirming the crucial role of health and income in determining life satisfaction, but also extend its findings to factors that beyond health and income, which are social relationships of older people.

This paper does not include intergenerational ambivalence although attempted to include domestic violence in its analysis and suggests a more comprehensive research direction in the future with standardized measurements of income and health conditions, intergenerational solidarity as well as quality of relationships between generations in the family. The majority of older people in this analysis is satisfied with their life in overall, however, in a rapid social change in Vietnam, issues such as generation conflicts, elderly abuse, or age discrimination against the elderly, and youth migration are emerging and contribute to posing new problems about who cares for the elderly and the quality of the relationship among elderly family members. Further studies should also take into account effects of these factors in analysis of the older people's overall life satisfaction.

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